

Please replace page 265 (Table XXIIIC) with the attached Substitute Sheet, page 265.

Please replace page 266 (Table XXIIID) with the attached Substitute Sheets, pages 266 and 266a.

Please replace page 267 (Table XXIVA) with the attached Substitute Sheet, page 267.

Please replace page 268 (Table XXIVB) with the attached Substitute Sheet, page 268.

Please replace page 269 (Table XXIVC) with the attached Substitute Sheet, page 269.

Please replace page 270 (Table XXIVD) with the attached Substitute Sheet, page 270.

Please insert the accompanying paper copy of the Sequence Listing, page numbers 1 to 914, at the end of the application.

REMARKS

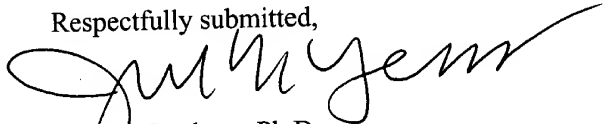
This amendment contains no new matter. Applicants note that the change in the number of pages for Table XXIIID is due to re-formatting.

This amendment is accompanied by a floppy disk containing the above named sequences, SEQ ID NOS:1-6899, in computer readable form, and a paper copy of the sequence information which has been printed from the floppy disk.

The information contained in the computer readable disk was prepared through the use of the software program "FastSEQ" and is identical to that of the paper copy.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Amendment to the paragraph replaced at page 54, lines 16-25:

--In certain embodiments, the T helper peptide is one that is recognized by T helper cells present in the majority of the population. This can be accomplished by selecting amino acid sequences that bind to many, most, or all of the HLA class II molecules. These are known as "loosely HLA-restricted" or "promiscuous" T helper sequences. Examples of peptides that are promiscuous include sequences from antigens such as tetanus toxoid at positions 830-843 (QYIKANSKFIGITE; SEQ ID NO:6695), *Plasmodium falciparum* circumsporozoite (CS) protein at positions 378-398 (DIEKKIAKMEKASSVFNVVNS; SEQ ID NO:6696), and *Streptococcus* 18kD protein at positions 116 (GAVDSILGGVATYGAA; SEQ ID NO:6697). Other examples include peptides bearing a DR 1-4-7 supermotif, or either of the DR3 motifs.--

Amendment to the replaced paragraph at page 54, line 26 to page 55, line 3:

--Alternatively, it is possible to prepare synthetic peptides capable of stimulating T helper lymphocytes, in a loosely HLA-restricted fashion, using amino acid sequences not found in nature (see, e.g., PCT publication WO 95/07707). These synthetic compounds called Pan-DR-binding epitopes (e.g., PADRE™, Epimmune, Inc., San Diego, CA) are designed to most preferably bind most HLA-DR (human HLA class II) molecules. For instance, a pan-DR-binding epitope peptide having the formula: aKXVAAWTLKAAa (SEQ ID NO:6698), where "X" is either cyclohexylalanine, phenylalanine, or tyrosine, and "a" is either D-alanine or L-alanine, has been found to bind to most HLA-DR alleles, and to stimulate the response of T helper lymphocytes from most individuals, regardless of their HLA type. An alternative of a pan-DR binding epitope comprises all "L" natural amino acids and can be provided in the form of nucleic acids that encode the epitope.—

Table IV: HLA Class I Standard Peptide Binding Affinity.

ALLELE	STANDARD PEPTIDE	SEQUENCE (SEQ ID NO:)	STANDARD BINDING AFFINITY (nM)	SEQ ID NO:
A*0101	944.02	YLEPAIAKY	25	6699
A*0201	941.01	FLPSDYFPSV	5.0	6700
A*0202	941.01	FLPSDYFPSV	4.3	6700
A*0203	941.01	FLPSDYFPSV	10	6700
A*0205	941.01	FLPSDYFPSV	4.3	6700
A*0206	941.01	FLPSDYFPSV	3.7	6700
A*0207	941.01	FLPSDYFPSV	23	6700
A*6802	1072.34	YVIKVSARV	8.0	6701
A*0301	941.12	KVFPYALINK	11	6702
A*1101	940.06	AVDLYHFLK	6.0	6703
A*3101	941.12	KVFPYALINK	18	6704
A*3301	1083.02	STLPETYVVR	29	6704
A*6801	941.12	KVFPYALINK	8.0	6702
A*2402	979.02	AYIDNYNKF	12	6705
B*0702	1075.23	APRTLVL	5.5	6706
B*3501	1021.05	FPFKYAAAF	7.2	6707
B51	1021.05	FPFKYAAAF	5.5	6707
B*5301	1021.05	FPFKYAAAF	9.3	6707
B*5401	1021.05	FPFKYAAAF	10	6707

Table V. HLA Class II Standard Peptide Binding Affinity.

Allele	Nomenclature	Standard Peptide	Sequence (SEQ ID NO:)	Binding Affinity (nM)
DRB1*0101	DR1	515.01	PKYVKQNTLKLAT	5.0
DRB1*0301	DR3	829.02	YKTIAFDEEARR	300
DRB1*0401	DR4w4	515.01	PKYVKQNTLKLAT	45
DRB1*0404	DR4w14	717.01	YARFQSQTTLKQKT	50
DRB1*0405	DR4w15	717.01	YARFQSQTTLKQKT	38
DRB1*0701	DR7	553.01	QYIKANSKFIGITE	25
DRB1*0802	DR8w2	553.01	QYIKANSKFIGITE	49
DRB1*0803	DR8w3	553.01	QYIKANSKFIGITE	1600
DRB1*0901	DR9	553.01	QYIKANSKFIGITE	75
DRB1*1101	DR5w11	553.01	QYIKANSKFIGITE	20
DRB1*1201	DR5w12	1200.05	EALIHQLKINPYVLS	298
DRB1*1302	DR6w19	650.22	QYIKANAKFIGITE	3.5
DRB1*1501	DR2w2 β 1	507.02	GRTQDENPVVHFFKNIV TPRTPPP	9.1
DRB3*0101	DR52a	511	NGQIGNDPNRDIL	470
DRB4*0101	DRw53	717.01	YARFQSQTTLKQKT	58
DRB5*0101	DR2w2 β 2	553.01	QYIKANSKFIGITE	20

SEQ
 ID
 NO:
 6708
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Table XXII. Prostate Antigen Peptides

Antigen Binding affinity $\leq 200\text{nM}$	Sequence	SEQ ID NO: <u>6870</u>
PSA.117	LMLRLSEPA	↓
PSA.118	MLLRLSEPAEL	
PSA.118	MLLRLSEPA	
PSA.143	ALGTTCTYA	
PSA.161	FLTPKKLQCV	
PSA.166	KLQCVDLHV	
PAP.6	LLARAASLSL	<u>6875</u>
PAP.21	LLFFWLDRSV	<u>6876</u>
PAP.30	VLAKELKFV	↓
PAP.92	FLNESYKHEQV	
PAP.112	TLMSAMTNL	
PAP.135	ILLWQPIPV	
PAP.284	IMYSAHDTTV	
PAP.299	ALDVYNGLL	
PSM.26	LVLGGFFL	
PSM.27	VLAGGFFLL	<u>6883</u>
PSM.168	GMPEGDLVYV	<u>6884</u>
PSM.288	GLPSIPVHPI	↓
PSM.441	LLQERGVAYI	
PSM.469	LMYSLVHNL	
PSM.662	RMMNDQLMFL	
PSM.663	MMNDQLMFL	
PSM.667	QLMFLERAFI	
PSM.711	ALFDIESKV	
HuK2.165	FLRPRSLQCV	<u>6893</u>
HuK2.175	SLHLLSNDMCA	<u>6894</u>
		<u>6895</u>
Binding affinity $>200\text{nM}$	Sequence	
PSM.4	LLHETDSAV	<u>6896</u>
PSM.25	ALVLAGGFFL	↓
PSM.427	GLLGSTEW	
PSM.514	KLGSNDFEV	

Table XXIIIA A2 supermotif cross-reactive binding data

Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
20.0044	9	LLARAAASL	PAP.6	208	13	29	425	--	4
63.0136	11	LLARAAASLSL	PAP.6	8.1	3.1	5.3	80	143	5
60.0201	9	LLARAAASV	PAP.6.V9	18	215	6.7	95	--	4
20.0203	10	LLARAAASLSL	PAP.7	500	5.2	63	9250	5714	3
63.0031	10	LLARAAASLSV	PAP.7.V10	109	10	21	378	727	4
63.0137	11	AASLSLGFLL	PAP.11	227	23	53	95	--	4
1419.51	10	SLSLGFLL	PAP.13	40	13	403	21	8560	4
1419.52	10	SLSLGFLLV	PAP.13.V10	1.8	3.9	17	42	355	5
1419.50	9	SLSLGFLLV	PAP.13.V9	77	25	21	93	--	4
60.0203	9	FLFLFFV	PAP.18.V9	42	307	625	308	90	4
63.0138	11	FLFFWLDRSV	PAP.20	14	17	2.8	285	364	5
1097.09	10	LLFFWLDRSV	PAP.21	28	0.60	1.6	231	--	4
1418.23	10	LTFWLDRSV	PAP.21.T2	118	11	9.6	43	16	5
63.0139	11	LLFFWLDRSVL	PAP.21	65	2.9	2.7	822	4444	3
63.0033	10	SLAKELKFV	PAP.29.L2	64	5.7	3.8	38	6667	4
1097.171	9	VLAKELKFV	PAP.30	96	3.6	6.7	168	--	4
63.0142	11	VLAKELKFVTL	PAP.30	6.9	8.1	21	25	--	4
63.0034	10	VLAKELKFV	PAP.30.V10	31	12	189	86	2286	4
1419.55	11	FLNESYKHEQV	PAP.92	29	1.4	5.6	381	6154	4
1177.01	9	TLMSAMTNL	PAP.112	43	0.80	2.9	285	296	5
20.0312	10	TLMSAMTNLA	PAP.112	385	3.6	37	3700	6667	3
63.0037	10	TLMSAMTNLV	PAP.112.V10	63	3.9	12	43	242	5
1419.56	9	TLMSAMTNV	PAP.112.V9	10	2.4	3.6	54	62	5
1419.58	10	LLALFPPEGV	PAP.120.L2	5.0	0.70	1.6	148	163	5
1419.59	10	LVALFPPEGV	PAP.120.V2	156	17	4.8	463	28	5
1419.6	10	ALFPPEGVSI	PAP.122	278	11	133	2643	--	3

-- indicates binding affinity >10,000nM.

Table XXIII A2 supermotif cross-reactive binding data

Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
6741 1419.61	10	ALFPEGVSV	PAP.122.V10	15	1.0	18	119	4444	4
6742 63.0041	10	GVSINPILV	PAP.128.V10	250	94	23	451	2286	4
6743 60.0207	9	GVSINPIV	PAP.128.V9	455	269	909	308	--	3
6744 63.0042	10	PLLLWQPIV	PAP.134.L2	238	47	19	336	3333	4
6745 1044.04	9	ILLWQPIV	PAP.135	3.3	39	1.8	71	1702	4
6746 1418.25	9	ITLWQPIV	PAP.135.T2	34	1720	6.2	26	32	4
6747 1419.69	10	LLWQPIVHV	PAP.136.V10	25	1.8	17	287	60	5
6748 1166.11	10	GLHGQDLFGI	PAP.196	26	0.90	2.5	315	--	4
6749 1419.62	10	GLHGQDLFGV	PAP.196.V10	12	2.3	3.1	18	--	4
6750 63.0048	10	KLRELSV	PAP.234.V10	263	9.1	7.1	49	1818	4
6751 1097.05	10	IMYSAHDTTV	PAP.284	217	1.5	14	411	--	4
6752 1389.06	10	ILYSAHDTTV	PAP.284.L2	385	1.0	15	1480	5714	3
6753 60.0213	9	TVSGLQMAV	PAP.292.V9	294	12	122	195	5.7	5
6754 1177.02	9	ALDVYNGLL	PAP.299	73	29	256	3083	--	3
6755 1419.64	10	LLPPYASCHV	PAP.306.V10	88	15	16	98	5260	4

-- indicates binding affinity >10,000nM.

Table XXIIIB A2 supermotif cross-reactive binding data

Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
1126.10	9	VLGGFFLL	PSM.27	39	0.20	33	31	2857	4
1389.20	9	VLGGFFLV	PSM.27.V9	26	0.40	5.0	57	216	5
1129.04	10	GMPEGDLVYV	PSM.168	55	3.1	7.1	161	6154	4
1389.22	10	GLPEGDLVYV	PSM.168.L2	42	2.0	2.1	112	964	4
1418.29	10	GTPEGDLVYV	PSM.168.T2	313	134	53	40	571	4
1129.10	10	GLPSIPVHPI	PSM.288	147	2.7	2.1	2467	308	4
1389.24	10	GLPSIPVHPV	PSM.288.V10	55	0.70	0.60	308	121	5
1129.01	10	LLQERGVAYI	PSM.441	179	5.7	6.7	861	--	3
1126.14	9	LMYSLVHNL	PSM.469	64	0.40	2.1	109	320	5
1126.06	10	RMNDQLMFL	PSM.662	9.8	2.7	7.7	40	--	4
1126.01	9	MMNDQLMFL	PSM.663	11	0.80	1.7	7.6	195	5
1126.16	10	QLMFLERAFI	PSM.667	98	36	91	--	30	4
1129.08	9	ALFDIESKV	PSM.711	85	0.70	1.4	148	8889	4
1418.30	9	ATFDIESKV	PSM.711.T2	238	27	44	82	258	5

Seq ID
NO.:
6757

6770

-- indicates binding affinity >10,000nM.

Table XXIII C A2 supermotif cross-reactive binding data

Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross-Reactivity
52450 No: 6771	11	VVFLTLSTWI	PSA.1		385	159	63	2846	--	3
	11	VVFLTLSTWV	PSA.1.V11		89	88	71	336	--	4
	11	FLTLSTWIGV	PSA.3.V11		6.8	3.0	18	65	114	5
	9	FLTLSTWV	PSA.3.V9		53	8.4	8.3	49	--	4
	9	TLSTWIGV	PSA.5.V9		26	4.9	40	712	229	4
	11	VLVHPQWVLT	PSA.49	HuK2.53	294	7.7	101	2056	--	3
	11	VLVHPQWVLT	PSA.49.V11	HuK2.53.V11	11	1.5	16	31	8889	4
	11	DLMLRLSEPV	PSA.116.V11	HuK2.120.V11	50	57	29	148	2759	4
	10	MLLRLSEPA	PSA.117	HuK2.121	200	17	67	925	5000	3
	10	MLLRLSEPV	PSA.117.V10	HuK2.121.V10	114	67	29	25	6154	4
	9	MLLRLSEPA	PSA.118	HuK2.122	195	745	145	49	--	3
	9	MLLRLSEPV	PSA.118.V9	HuK2.122.V9	36	36	46	638	421	4
	11	MLLRLSEPAEV	PSA.118.V11		294	331	115	1762	4444	3
	8	ALGTTGYA	PSA.143	HuK2.147	15	19	13	561	--	3
	8	ALGTTGYV	PSA.143.V8	HuK2.147.V8	74	6.4	12	264	--	4
	10	FLTPKKLQCV	PSA.161		52	8.3	13	755	--	3
	9	KLQCVDLHV	PSA.166		79	205	91	6167	--	3
	10	KLQCVDLHVV	PSA.166.V10		13	84	9.1	500	--	4
	9	KVTKFMLCV	PSA.187.V9		69	518	53	128	--	3
	11	PLVCGVQLQGV	PSA.212.V11	HuK2.216.V11	27	127	19	255	4314	4
	10	LVCNGVQLQGV	PSA.213.V10	HuK2.217.V10	10	2.9	12	5.6	3.5	5

-- indicates binding affinity >10,000nM.

Table XXIIID A2 supermotif cross-reactive binding data

Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
1418.13	9	LLLSIALSV	HuK2.4.L2		88	176	147	189	--	4
1418.57	11	ILLSVGCTGAV	HuK2.8.L2		36	33	36	308	--	4
1418.59	11	ITLSVGCTGAV	HuK2.8.T2		294	134	40	206	121	5
1419.05	10	ALSVGCTGAV	HuK2.9		53	75	17	542	--	3
1418.15	9	ALSVGCTGV	HuK2.9.V9		24	17	9.1	264	--	4
1418.35	10	SVGCTGAVPV	HuK2.11.V10		104	287	154	552	216	4
1419.10	11	VLVHPQWVLT	HuK2.53	PSA.49	294	7.7	101	2056	--	3
1419.11	11	VLVHPQWVLT	HuK2.53.V11	PSA.49.V11	11	1.6	16	31	9378	4
63.0109	11	DLMLRLSEPV	HuK2.120.V11	PSA.116.V11	50	57	29	148	2759	4
63.0014	10	LMMLRLSEPA	HuK2.121	PSA.117	200	17	67	925	5000	3
1418.43	10	LMMLRLSEPV	HuK2.121.V10	PSA.117.V10	114	67	29	25	6154	4
1419.02	9	MLLRLSEPA	HuK2.122	PSA.118	195	745	145	49	--	3
1389.10	9	MLLRLSEPV	HuK2.122.V9	PSA.118.V9	36	36	46	638	421	4
1419.01	8	ALGTTTCYA	HuK2.147	PSA.143	15	19	13	561	--	3
1389.14	8	ALGTTTCYV	HuK2.147.V8	PSA.143.V8	74	6.4	12	264	--	4
1419.07	10	FLRPSLQCV	HuK2.165		186	4.8	4.2	--	--	3
60.0191	9	SLQCVSLHL	HuK2.170		500	51	417	6167	2581	3
1419.66	10	SLQCVSLHLL	HuK2.170		263	4.9	71	446	5000	4
1418.52	10	SLQCVSLHLV	HuK2.170.V10		13	6.3	2.8	5.2	205	5
1418.19	9	SLQCVSLHV	HuK2.170.V9		56	165	48	4111	1600	3
1419.14	11	SLHLLSNDMCA	HuK2.175		71	4.8	71	--	--	3
1418.66	11	SLHLLSNDMCV	HuK2.175.V11		8.6	0.80	10	2313	2162	3
1419.15	11	HLLSNDMCA	HuK2.177		417	391	250	374	--	4
1418.67	11	HLLSNDMCARV	HuK2.177.V11		26	1.3	5.3	37	860	4
1418.20	9	HLLSNDMCV	HuK2.177.V9		119	102	278	176	--	4
1418.53	10	LJSNDMCARV	HuK2.178.V10		5.3	0.70	4.3	10	1702	4
1418.71	11	KVTFEMLCAGV	HuK2.191.V11		56	10	26	29	143	5
1418.21	9	KVTFEMLCV	HuK2.191.V9		53	27	31	34	6667	4
1418.22	9	FMLCAGLV	HuK2.195.V9		29	12	91	51	--	4
1419.17	11	PLVCGVLQGV	HuK2.216.V11	PSA.212.V11	27	127	19	255	4314	4
1418.55	10	LVCNGVLQGV	HuK2.217.V10	PSA.213.V11	10	2.9	12	5.6	3.5	5

-- indicates binding affinity > 10,000nM.

Table XXIVA Immunogenicity of A2 cross-reactive binding peptides and peptide analogs

Peptide ID	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross- Reactivity (≤ 200 nM)	A2 peptide	A2 native	A2 in vivo
1419.51	10	SLSGLFLFL	PAP.13	40	13	403	21	8560	3			
1419.52	10	SLSGLFLFLV	PAP.13.V10	1.8	3.9	17	42	355	4			
1097.09	10	LLFFWLDRSV	PAP.21	28	0.60	1.6	231	--	3	3/3		0/3
1418.23	10	LTFWLDRSV	PAP.21.T2	118	11	9.6	43	16	5	3/3	2/3	
1097.17	9	VLAKELKFV	PAP.30	96	3.6	6.7	168	--	4	1/3		0/3
1177.01	9	TLMSAMTNL	PAP.112	43	0.80	2.9	285	296	3	2/2		3/3
1419.58	10	LLALFPPEGV	PAP.120.L2	5.0	0.72	1.6	146	164	5			
1419.61	10	ALFPPEGVSV	PAP.122.V10	15	1.0	18	120	4387	4	1/3	1/3	
1044.04	9	ILLWQPIPV	PAP.135	3.3	39	1.8	71	8511	4	5/5		1/6
1418.25	9	ITLWQPIPV	PAP.135.T2	34	1723	6.2	26	32	4	3/3	2/3	
1419.69	10	LLWQPIPVHV	PAP.136.V10	25	1.8	17	287	60	4			
1166.11	10	GLHGQDLFGI	PAP.196	26	0.9	2.5	315	--	3			
1419.62	10	GLHGQDLFGV	PAP.196.V10	12	2.3	3.2	18	--	4			
1097.05	10	IMYSAHDTTV	PAP.284	217	1.5	14	411	--	2	3/3		0/3
1419.64	10	LLPPYASCHV	PAP.306.V10	88	15	16	98	5260	4			

SEQ ID
no.:
683

683

Table XXIVB Immunogenicity of A2 cross-reactive binding peptide and peptide analogs

Peptide ID	AA Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross-Reactivity (≤ 200 nM)	A2 peptide	A2 native	A2 in vivo
Seq ID 101 WD. 6838	9 VLAGGFLL	PSM.27	39	0.20	33	31	--	4	1/2		3/3
1389.20	9 VLAGGFLV	PSM.27.V9	26	0.40	5.0	57	216	4	1/2	1/2	
1129.04	10 GMPEGDLVYV	PSM.168	55	3.1	7.1	161	--	4	0/1		1/3
1129.10	10 GLPSIPVHPV	PSM.288	147	2.7	2.1	2467	1538	3	2/4		0/3
1389.24	10 GLPSIPVHPV	PSM.288.V10	55	0.70	0.60	308	121	4	4/4	3/4	
1129.01	10 LLQERGVAI	PSM.441	179	5.7	6.7	861	--	3	3/3		
1126.14	9 LMYSLVHNL	PSM.469	64	0.40	2.1	109	1600	4	3/3		3/3
1126.06	10 RMMNDQLMFL	PSM.662	9.8	2.7	7.7	40	--	4	1/1		20/22
1126.01	9 MMNDQLMFL	PSM.663	11	0.80	1.7	7.6	976	4	2/2		3/3
6847 1129.08	9 ALFDIESKV	PSM.711	85	0.70	1.4	148	--	4	2/2		3/3

Table XXIVC Immunogenicity of A2 cross-reactive binding peptides and peptide analogs

Peptide ID	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross- Reactivity (<200nM)	A2 peptide	A2 native	A2 in vivo
58777 1419.27	11	FLTLSTWIGV	PSA.3.V11		6.8	3.0	18	65	113	5	3/3	3/3	
6048 1419.11	11	VLVHPQWVLT	PSA.49.V11	HuK2.53.V11	11	1.6	16	31	9378	4			
	11	DLMLRLSEPV	PSA.116.V11	HuK2.120.V11	50	57	29	148	2759	4			
1419.02	9	MLLRLSEPA	PSA.118	HuK2.122	195	745	145	49	--	3			
1389.10	9	MLLRLSEPV	PSA.118.V9	HuK2.122.V9	36	36	46	638	421	3	3/3	1/3	
1419.01	8	ALGTTCTYA	PSA.143	PSA.143	15	19	13	562	--	3			
1389.14	8	ALGTTCTYV	PSA.143.V8	HuK2.147.V8	74	6.4	12	264	--	3	2/3	1/3	
1098.02	10	FLTPKKLQCV	PSA.161		52	8.3	13	755	--	3	3/4		0/6
990.01	9	KLQCVDLHV	PSA.166		79	205	91	6167	--	2	1/2		1/3
1419.24	10	KLQCVDLHVV	PSA.166.V10		13	84	9.5	502	--	3	1/2	1/2	
6856 1419.17	11	PLVNGVLQGV	PSA.212.V11	HuK2.216.V11	27	127	19	255	4314	3			

Table XXIV Immunogenicity of A2 cross-reactive binding peptides and peptide analogs

Peptide	ID	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross- Reactivity (≤200nM)	A2 peptide	A2 native	A2 in vivo
1418.13	9	L L L S I A L S V	HuK2.4.L2			88	176	147	189	--	4	2/2	2/2	
1419.05	10	A L S V G C T G A V	HuK2.9			53	75	17	542	--	3			
1419.11	11	V L V H P Q W V L T V	HuK2.53.V11	PSA.49.V11		11	1.6	16	31	9378	4	2/2	2/2	
1419.13	11	D L M L L R L S E P V	HuK2.120.V11	PSA.116.V11		50	57	29	148	2759	4	2/2	2/2	
1419.02	9	M L L R L S E P A	HuK2.122	PSA.118		195	745	145	49	--	3			
1389.10	9	M L L R L S E P V	HuK2.122.V9	PSA.118.V9		36	36	46	638	421	3			
1419.01	8	A L G T T C Y A	HuK2.147	PSA.143		15	19	13	562	--	3	1/2		
1389.14	8	A L G T T C Y V	HuK2.147.V8	PSA.143.V8		74	6.4	12	264	--	3			
1419.07	10	F L R P R S L Q C V	HuK2.165			186	4.8	4	--	--	3	1/3		
1419.14	11	S L H L L S N D M C A	HuK2.175			72	4.8	73	--	--	3	1/3		
1419.17	11	P L V C N G V L Q G V	HuK2.216.V11	PSA.212.V11		27	127	19	255	4314	3	2/2	2/2	

589
410
WQ
6859

6869

APPENDIX B
SUBSTITUTE SHEETS

Table IV. HLA Class I Standard Peptide Binding Affinity.

ALLELE	STANDARD PEPTIDE	SEQUENCE	STANDARD BINDING AFFINITY (nM)	SEQ ID NO:
A*0101	944.02	YLEPAIAKY	25	6699
A*0201	941.01	FLPSDYFPSV	5.0	6700
A*0202	941.01	FLPSDYFPSV	4.3	6700
A*0203	941.01	FLPSDYFPSV	10	6700
A*0205	941.01	FLPSDYFPSV	4.3	6700
A*0206	941.01	FLPSDYFPSV	3.7	6700
A*0207	941.01	FLPSDYFPSV	23	6700
A*6802	1141.02	FTQAGYPAL	40	6701
A*0301	941.12	KVFPYALINK	11	6702
A*1101	940.06	AVDLYHFLK	6.0	6703
A*3101	941.12	KVFPYALINK	18	6702
A*3301	1083.02	STLPETYVRR	29	6704
A*6801	941.12	KVFPYALINK	8.0	6702
A*2401	979.02	AYIDNYNKF	12	6705
B*0702	1075.23	APRTL VYLL	5.5	6706
B*3501	1021.05	FPFKYAAAF	7.2	6707
B51	1021.05	FPFKYAAAF	5.5	6707
B*5301	1021.05	FPFKYAAAF	9.3	6707
B*5401	1021.05	FPFKYAAAF	10	6707

Table V. HLA Class II Standard Peptide Binding Affinity.

Allele	Nomenclature	Standard Peptide	Sequence	Binding Affinity (nM)	SEQ ID NO:
DRB1*0101	DR1	515.01	PKYVKQNTLKLAT	5.0	6708
DRB1*0301	DR3	829.02	YKTIAFDEEARR	300	6709
DRB1*0401	DR4w4	515.01	PKYVKQNTLKLAT	45	6708
DRB1*0404	DR4w14	717.01	YARFQSQTTLKQKT	50	6710
DRB1*0405	DR4w15	717.01	YARFQSQTTLKQKT	38	6710
DRB1*0701	DR7	553.01	QYIKANSKFIGITE	25	6711
DRB1*0802	DR8w2	553.01	QYIKANSKFIGITE	49	6711
DRB1*0803	DR8w3	553.01	QYIKANSKFIGITE	1600	6711
DRB1*0901	DR9	553.01	QYIKANSKFIGITE	75	6711
DRB1*1101	DR5w11	553.01	QYIKANSKFIGITE	20	6711
DRB1*1201	DR5w12	1200.05	EALIHQLKINPYVLS	298	6712
DRB1*1302	DR6w19	650.22	QYIKANAKFIGITE	3.5	6713
DRB1*1501	DR2w2 β 1	507.02	GRTQDENPVVHFFKNIV TPRTPPP	9.1	6714
DRB3*0101	DR52a	511	NGQIGNDPNRDIL	470	6715
DRB4*0101	DRw53	717.01	YARFQSQTTLKQKT	58	6710
DRB5*0101	DR2w2 β 2	553.01	QYIKANSKFIGITE	20	6711

Table XXII. Prostate Antigen Peptides

Antigen Binding affinity $\leq 200\text{nM}$	Sequence	SEQ ID NO.:
PSA.117	LMLLRLSEPA	6870
PSA.118	MLLRLSEPAEL	6871
PSA.118	MLLRLSEPA	6872
PSA.143	ALGTTCYA	6873
PSA.161	FLTPKKLQCV	6874
PSA.166	KLQCVDLHV	6875
PAP.6	LLLARAASLSL	6876
PAP.21	LLFFWLDRSV	6877
PAP.30	VLAKELKFV	6878
PAP.92	FLNESYKHEQV	6879
PAP.112	TLMSAMTNL	6880
PAP.135	ILLWQPIPV	6881
PAP.284	IMYSAHDTTV	6882
PAP.299	ALDVYNGLL	6883
PSM.26	LVLAGGFFL	6884
PSM.27	VLAGGFFLL	6885
PSM.168	GMPEGDLVYV	6886
PSM.288	GLPSIPVHPI	6887
PSM.441	LLQERGVAYI	6888
PSM.469	LMYSLVHNL	6889
PSM.662	RMMNDQLMFL	6890
PSM.663	MMNDQLMFL	6891
PSM.667	QLMFLERAFL	6892
PSM.711	ALFDIESKV	6893
HuK2.165	FLRPRSLQCV	6894
HuK2.175	SLHLLSNDMCA	6895
Binding affinity $>200\text{nM}$	Sequence	
PSM.4	LLHETDSAV	6896
PSM.25	ALVLAGGFFL	6897
PSM.427	GLLGSTEW	6898
PSM.514	KLGSNDFEV	6899

Table XXIII A supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
6716	20.0044	9	LLARAASL	PAP.6	208	13	29	425	--	4
6717	63.0136	11	LLARAASLSL	PAP.6	8.1	3.1	5.3	80	143	5
6718	60.0201	9	LLARAASV	PAP.6.V9	18	215	6.7	95	--	4
6719	20.0203	10	LLARAASLSL	PAP.7	500	5.2	63	9250	5714	3
6720	63.0031	10	LLARAASLSV	PAP.7.V10	109	10	21	378	727	4
6721	63.0137	11	AASLSGLFL	PAP.11	227	23	53	95	--	4
6722	1419.51	10	SLSLGFLFL	PAP.13	40	13	403	21	8560	4
6723	1419.52	10	SLSLGFLFLV	PAP.13.V10	1.8	3.9	17	42	355	5
6724	1419.50	9	SLSLGFLFV	PAP.13.V9	77	25	21	93	--	4
6725	60.0203	9	FLFLFFWV	PAP.18.V9	42	307	625	308	90	4
6726	63.0138	11	FLFFWLDRSV	PAP.20	14	17	2.8	285	364	5
6727	1097.09	10	LLFFWLDRSV	PAP.21	28	0.60	1.6	231	--	4
6728	1418.23	10	LTFFWLDRSV	PAP.21.T2	118	11	9.6	43	16	5
6729	63.0139	11	LLFFWLDRSVL	PAP.21	65	2.9	2.7	822	4444	3
6730	63.0033	10	SLLAKELFV	PAP.29.L2	64	5.7	3.8	38	6667	4
6731	1097.171	9	VLAKELFV	PAP.30	96	3.6	6.7	168	--	4
6732	63.0142	11	VLAKELKFVTL	PAP.30	6.9	8.1	21	25	--	4
6733	63.0034	10	VLAKELKFV	PAP.30.V10	31	12	189	86	2286	4
6734	1419.55	11	FLNESYKHEQV	PAP.92	29	1.4	5.6	381	6154	4
6735	1177.01	9	TLMSAMTNL	PAP.112	43	0.80	2.9	285	296	5
6736	20.0312	10	TLMSAMTNLA	PAP.112	385	3.6	37	3700	6667	3
6737	63.0037	10	TLMSAMTNLV	PAP.112.V10	63	3.9	12	43	242	5
6738	1419.56	9	TLMSAMTNV	PAP.112.V9	10	2.4	3.6	54	62	5
6739	1419.58	10	LLALFPPEGV	PAP.120.L2	5.0	0.70	1.6	148	163	5

-- indicates binding affinity > 10,000nM.

Table XXIII A supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross- Reactivity
6740	1419.59	10	LVALFPPEGV	PAP.120.V2	156	17	4.8	463	28	5
6741	1419.6	10	ALFPPEGVSI	PAP.122	278	11	133	2643	--	3
6742	1419.61	10	ALFPPEGVSV	PAP.122.V10	15	1.0	18	119	4444	4
6743	63.0041	10	GVSINWNPILV	PAP.128.V10	250	94	23	451	2286	4
6744	60.0207	9	GVSINWNPIV	PAP.128.V9	455	269	909	308	--	3
6745	63.0042	10	PLLLWQPIPV	PAP.134.L2	238	47	19	336	3333	4
6746	1044.04	9	ILLWQPIPV	PAP.135	3.3	39	1.8	71	1702	4
6747	1418.25	9	ITLWQPIPV	PAP.135.T2	34	1720	6.2	26	32	4
6748	1419.69	10	LLWQPIPVHV	PAP.136.V10	25	1.8	17	287	60	5
6749	1166.11	10	GLHGQDLFGI	PAP.196	26	0.90	2.5	315	--	4
6750	1419.62	10	GLHGQDLFGV	PAP.196.V10	12	2.3	3.1	18	--	4
6751	63.0048	10	KLRELSELSV	PAP.234.V10	263	9.1	7.1	49	1818	4
6752	1097.05	10	IMYSAHDTTV	PAP.284	217	1.5	14	411	--	4
6753	1389.06	10	ILYSAHDTTV	PAP.284.L2	385	1.0	15	1480	5714	3
6754	60.0213	9	TVSGLQMAV	PAP.292.V9	294	12	122	195	5.7	5
6755	1177.02	9	ALDVYNGLL	PAP.299	73	29	256	3083	--	3
6756	1419.64	10	LLPPYASCHV	PAP.306.V10	88	15	16	98	5260	4

-- indicates binding affinity >10,000nM.

Table XXIIIIB A2 supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	Alternate Peptide Number	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross-Reactivity
6757	1126.10		9	VLAGGFFLL	PSM.27	39	0.20	33	31	2857	4
6758	1389.20		9	VLAGGFFLV	PSM.27.V9	26	0.40	5.0	57	216	5
6759	1129.04		10	GMPEGDLVYV	PSM.168	55	3.1	7.1	161	6154	4
6760	1389.22		10	GLPEGDLVYV	PSM.168.L2	42	2.0	2.1	112	964	4
6761	1418.29		10	GTPEGDLVYV	PSM.168.T2	313	134	53	40	571	4
6762	1129.10		10	GLPSIPVHPI	PSM.288	147	2.7	2.1	2467	308	4
6763	1389.24		10	GLPSIPVHPV	PSM.288.V10	55	0.70	0.60	308	121	5
6764	1129.01		10	LLQERGVAYI	PSM.441	179	5.7	6.7	861	--	3
6765	1126.14		9	LMYSLVHNL	PSM.469	64	0.40	2.1	109	320	5
6766	1126.06		10	RMNDQLMFL	PSM.662	9.8	2.7	7.7	40	--	4
6767	1126.01		9	MMNDQLMFL	PSM.663	11	0.80	1.7	7.6	195	5
6768	1126.16		10	QLMFLERAFI	PSM.667	98	36	91	--	30	4
6769	1129.08		9	ALFDIESKV	PSM.711	85	0.70	1.4	148	8889	4
6770	1418.30		9	ATFDIESKV	PSM.711.T2	238	27	44	82	258	5

-- indicates binding affinity >10,000nM.

Table XXIIIC A2 supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross-Reactivity
6771	1419.25	11	VVFLTSLVTWI	PSA.1		385	159	63	2846	--	3
6772	63.0185	11	VVFLTSLVTWV	PSA.1.V11		89	88	71	336	--	4
6773	63.0186	11	FLTSLVTWIGV	PSA.3.V11		6.8	3.0	18	65	114	5
6774	60.0216	9	FLTSLVTWV	PSA.3.V9		53	8.4	8.3	49	--	4
6775	60.0217	9	TLSVTWIGV	PSA.5.V9		26	4.9	40	712	229	4
6776	1419.10	11	VLVHPQWVLT	PSA.49	HuK2.53	294	7.7	101	2056	--	3
6777	1419.11	11	VLVHPQWVLT	PSA.49.V11	HuK2.53.V11	11	1.5	16	31	8889	4
6778	63.0109	11	DLMLRLSEPV	PSA.116.V11	HuK2.120.V11	50	57	29	148	2759	4
6779	63.0014	10	MLLRLSEPA	PSA.117	HuK2.121	200	17	67	925	5000	3
6780	1418.43	10	MLLRLSEPV	PSA.117.V10	HuK2.121.V10	114	67	29	25	6154	4
6781	1419.02	9	MLLRLSEPA	PSA.118	HuK2.122	195	745	145	49	--	3
6782	1389.10	9	MLLRLSEPV	PSA.118.V9	HuK2.122.V9	36	36	46	638	421	4
6783	1389.12	11	MLLRLSEPAEV	PSA.118.V11		294	331	115	1762	4444	3
6784	1419.01	8	ALGTTICYA	PSA.143	HuK2.147	15	19	13	561	--	3
6785	1389.14	8	ALGTTICVY	PSA.143.V8	HuK2.147.V8	74	6.4	12	264	--	4
6786	1098.02	10	FLTPKKLQCV	PSA.161		52	8.3	13	755	--	3
6787	990.01	9	KLQCVDLHV	PSA.166		79	205	91	6167	--	3
6788	63.0058	10	KLQCVDLHVV	PSA.166.V10		13	84	9.1	500	--	4
6789	60.0220	9	KVTKFMICV	PSA.187.V9		69	518	53	128	--	3
6790	1419.17	11	PLVCNGVLQGV	PSA.212.V11	HuK2.216.V11	27	127	19	255	4314	4
6791	1418.55	10	LVCNGVLQGV	PSA.213.V10	HuK2.217.V10	10	2.9	12	5.6	3.5	5

-- indicates binding affinity >10,000nM.

Table XXIIID A2 supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross-Reactivity
6792	1418.13	9	LLLSIALSV	HuK2.4.L2		88	176	147	189	--	4
6793	1418.57	11	ILLSVGCTGAV	HuK2.8.L2		36	33	36	308	--	4
6794	1418.59	11	ITLSVGCTGAV	HuK2.8.T2		294	134	40	206	121	5
6795	1419.05	10	ALSVGCTGAV	HuK2.9		53	75	17	542	--	3
6796	1418.15	9	ALSVGCTGV	HuK2.9.V9		24	17	9.1	264	--	4
6797	1418.35	10	SVGCTGAVPV	HuK2.11.V10		104	287	154	552	216	4
6798	1419.10	11	VLVHPQWVLTA	HuK2.53	PSA.49	294	7.7	101	2056	--	3
6799	1419.11	11	VLVHPQWVLTV	HuK2.53.V11	PSA.49.V11	11	1.6	16	31	9378	4
6800	63.0109	11	DLMLRLSEPV	HuK2.120.V11	PSA.116.V11	50	57	29	148	2759	4
6801	63.0014	10	LMLRLSEPA	HuK2.121	PSA.117	200	17	67	925	5000	3
6802	1418.43	10	LMLRLSEPV	HuK2.121.V10	PSA.117.V10	114	67	29	25	6154	4
6803	1419.02	9	MLRLSEPA	HuK2.122	PSA.118	195	745	145	49	--	3
6804	1389.10	9	MLRLSEPV	HuK2.122.V9	PSA.118.V9	36	36	46	638	421	4
6805	1419.01	8	ALGTTCTYA	HuK2.147	PSA.143	15	19	13	561	--	3
6806	1389.14	8	ALGTTCTYV	HuK2.147.V8	PSA.143.V8	74	6.4	12	264	--	4
6807	1419.07	10	FLRPRSLQCV	HuK2.165		186	4.8	4.2	--	--	3
6808	60.0191	9	SLQCVSLHL	HuK2.170		500	51	417	6167	2581	3
6809	1419.66	10	SLQCVSLHLL	HuK2.170		263	4.9	71	446	5000	4
6810	1418.52	10	SLQCVSLHLV	HuK2.170.V10		13	6.3	2.8	5.2	205	5
6811	1418.19	9	SLQCVSLHV	HuK2.170.V9		56	165	48	4111	1600	3
6812	1419.14	11	SLHLLSNDMCA	HuK2.175		71	4.8	71	--	--	3
6813	1418.66	11	SLHLLSNDMCV	HuK2.175.V11		8.6	0.80	10	2313	2162	3
6814	1419.15	11	HLLSNDMCARA	HuK2.177		417	391	250	374	--	4
6815	1418.67	11	HLLSNDMCARV	HuK2.177.V11		26	1.3	5.3	37	860	4
6816	1418.20	9	HLLSNDMCV	HuK2.177.V9		119	102	278	176	--	4

-- indicates binding affinity >10,000nM.

Table XXIIID A2 supermotif cross-reactive binding data

SEQ ID NO.:	Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	A2 Cross-Reactivity
6817	1418.53	10	LLSNDMCARV	HuK2.178.V10		5.3	0.70	4.3	10	1702	4
6818	1418.71	11	KVTEFMLCAGV	HuK2.191.V11		56	10	26	29	143	5
6819	1418.21	9	KVTEFMLCV	HuK2.191.V9		53	27	31	34	6667	4
6820	1418.22	9	FMLCAGLVV	HuK2.195.V9		29	12	91	51	--	4
6821	1419.17	11	PLVCGVQLQGV	HuK2.216.V11	PSA.212.V11	27	127	19	255	4314	4
6822	1418.55	10	LVCNGVQLQGV	HuK2.217.V10	PSA.213.V11	10	2.9	12	5.6	3.5	5

-- indicates binding affinity >10,000nM.

Table XXIVA Immunogenicity of A2 cross-reactive binding peptides and peptide analogs

SEQ ID NO.:	Peptide ID	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross-Reactivity (<200nM)	A2 peptide	A2 native	A2 in vivo
6823	1419.51	10	SLSLGFLFL	PAP.13	40	13	403	21	8560	3			
6824	1419.52	10	SLSLGFLFLV	PAP.13.V10	1.8	3.9	17	42	355	4			
6825	1097.094	10	LFFWLDRSV	PAP.21	28	0.60	1.6	231	--	3	3/3		0/3
6826	1418.23	10	LTFWLDRSV	PAP.21.T2	118	11	9.6	43	16	5	3/3	2/3	
6827	1097.171	9	VLAKELKFV	PAP.30	96	3.6	6.7	168	--	4	1/3		0/3
6828	1177.01	9	TLMSAMTNL	PAP.112	43	0.80	2.9	285	296	3	2/2		3/3
6829	1419.58	10	LLALFPEGV	PAP.120.L2	5.0	0.72	1.6	146	164	5			
6830	1419.61	10	ALFPEGVSV	PAP.122.V10	15	1.0	18	120	4387	4	1/3	1/3	
6831	1044.041	9	ILLWQPIPV	PAP.135	3.3	39	1.8	71	8511	4	5/5		1/6
6832	1418.25	9	ITLWQPIPV	PAP.135.T2	34	1723	6.2	26	32	4	3/3	2/3	
6833	1419.69	10	LLWQPIPVHV	PAP.136.V10	25	1.8	17	287	60	4			
6834	1166.11	10	GLHGQDLFGI	PAP.196	26	0.9	2.5	315	--	3			
6835	1419.62	10	GLHGQDLFGV	PAP.196.V10	12	2.3	3.2	18	--	4			
6836	1097.052	10	IMYSAHDTTV	PAP.284	217	1.5	14	411	--	2	3/3		0/3
6837	1419.64	10	LLPPYASCHV	PAP.306.V10	88	15	16	98	5260	4			

Table XXIVB Immunogenicity of A2 cross-reactive binding peptide and peptide analogs

SEQ ID NO.:	Peptide	AA	Sequence	Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross-Reactivity (<200nM)	A2 peptide	A2 native	A2 in vivo
6838	1126.10	9	VLAGGFFLL	PSM.27	39	0.20	33	31	--	4	1/2		3/3
6839	1389.20	9	VLAGGFFLV	PSM.27.V9	26	0.40	5.0	57	216	4	1/2	1/2	
6840	1129.04	10	GMPEGDLYVY	PSM.168	55	3.1	7.1	161	--	4	0/1		1/3
6841	1129.10	10	GLPSIPVHPI	PSM.288	147	2.7	2.1	2467	1538	3	2/4		0/3
6842	1389.24	10	GLPSIPVHPV	PSM.288.V10	55	0.70	0.60	308	121	4	4/4	3/4	
6843	1129.01	10	LLQERGVA YI	PSM.441	179	5.7	6.7	861	--	3	3/3		
6844	1126.14	9	LMYSLVHNL	PSM.469	64	0.40	2.1	109	1600	4	3/3		3/3
6845	1126.06	10	RMMNDQLMFL	PSM.662	9.8	2.7	7.7	40	--	4	1/1		20/22
6846	1126.01	9	MMNDQLMFL	PSM.663	11	0.80	1.7	7.6	976	4	2/2		3/3
6847	1129.08	9	ALFDIESKV	PSM.711	85	0.70	1.4	148	--	4	2/2		3/3

Table XXIVC Immunogenicity of A2 cross-reactive binding peptide and peptide analogs

SEQ ID NO.:	Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross- Reactivity (≤ 200 nM)	A2 peptide	A2 native in vivo
6848	63.0186	11	FLTSLVTWIGV	PSA.3.V11		6.8	3.0	18	65	113	5	3/3	3/3
6849	1419.11	11	VLVHPQWVLTV	PSA.49.V11	HuK2.53.V11	11	1.6	16	31	9378	4		
6850	63.0109	11	DMLRLRLSEPV	PSA.116.V11	HuK2.120.V1	50	57	29	148	2759	4		
6851	1419.02	9	MLRLSEPA	PSA.118	HuK2.122	195	745	145	49	--	3		
6852	1389.10	9	MLRLSEPV	PSA.118.V9	HuK2.122.V9	36	36	46	638	421	3	3/3	1/3
6853	1419.01	8	ALGTTCYA	PSA.143	PSA.143	15	19	13	562	--	3		
6854	1389.14	8	ALGTTCYV	PSA.143.V8	HuK2.147.V8	74	6.4	12	264	--	3	2/3	1/3
6855	1098.02	10	FLTPKKLQCV	PSA.161		52	8.3	13	755	--	3	3/4	0/6
6856	990.01	9	KLQCVDLHV	PSA.166		79	205	91	6167	--	2	1/2	1/3
6857	63.0058	10	KLQCVDLHV	PSA.166.V10		13	84	9.5	502	--	3	1/2	1/2
6858	1419.17	11	PLVCNGVLQGV	PSA.212.V11	HuK2.216.V1	27	127	19	255	4314	3		

Table XXIV D Immunogenicity of A2 cross-reactive binding peptide and peptide analogs

SEQ ID	Peptide	AA	Sequence	Source	Alternate Source	A*0201 nM	A*0202 nM	A*0203 nM	A*0206 nM	A*6802 nM	Cross-Reactivity (<200nM)	A2 peptide	A2 native	A2 in vivo
NO:														
6859	1418.13	9	LLLSIALSV	HuK2.4.L2		88	176	147	189	--	4	2/2	2/2	
6860	1419.05	10	ALSVGCTGAV	HuK2.9		53	75	17	542	--	3			
6861	1419.11	11	VLVHPQWVLTV	HuK2.53.V11	PSA.49.V11	11	1.6	16	31	9378	4	2/2	2/2	
6862	63.0109	11	DLMLRLRLSEPV	HuK2.120.V11	PSA.116.V11	50	57	29	148	2759	4	2/2	2/2	
6863	1419.02	9	MLRLSEPA	HuK2.122	PSA.118	195	745	145	49	--	3			
6864	1389.10	9	MLRLSEPV	HuK2.122.V9	PSA.118.V9	36	36	46	638	421	3			
6865	1419.01	8	ALGTTCTYA	HuK2.147	PSA.143	15	19	13	562	--	3	1/2		
6866	1389.14	8	ALGTTCTYV	HuK2.147.V8	PSA.143.V8	74	6.4	12	264	--	3			
6867	1419.07	10	FLRPRSLQCV	HuK2.165		186	4.8	4	--	--	3	1/3		
6868	1419.14	11	SLHLLSNDMCA	HuK2.175		72	4.8	73	--	--	3	1/3		
6869	1419.17	11	PLVCNGVLQGV	HuK2.216.V11	PSA.212.V11	27	127	19	255	4314	3	2/2	2/2	